Watershed Evaluations

03050111-010

(Santee River/Lake Marion)

General Description

Watershed 03050111-010 is located in Sumter, Clarendon, Calhoun, Orangeburg, and Berkeley Counties and consists primarily of the ***Santee River*** and its tributaries that flow into Lake Marion. The watershed occupies 222,737 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Chastain-Cantey-Faceville-Goldsboro-Rains series. The erodibility of the soil (K) averages 0.24; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 34.7% water, 26.8% forested land, 14.5% agricultural land, 12.5% scrub/shrub land, 9.9% forested wetland, 0.7% urban land, 0.6% nonforested wetland, and 0.3% barren land.

The Congaree River and the Wateree River join to form the headwaters of the Santee River. The Santee River flows through Lake Marion and exits through the Santee Dam or through the Diversio999n Canal to fill Lake Moultrie. Before entering the impounded Lake Marion, the Santee River receives drainage from Broadwater Creek and the Santee Swamp receives drainage from Tavern Creek and Mill Creek. Streams draining into Lake Marion include Squirrel Creek, Warley Creek, Spring Grove Creek (Pine Tree Creek, Ballard Creek, Half Way Creek, Duckford Branch), Richardson Branch, the Halfway Swamp Creek watershed (03050111-020), Little Poplar Creek, Big Poplar Creek, the Jacks Creek watershed (03050111-030), Cantey Bay (Oyster Bay, Monkey Bay), Chapel Branch, Webbs Creek, Mill Creek, Savana Branch, the Tawcaw Creek watershed (03050111-040), Eutaw Creek, and the Potato Creek watershed (03050111-050). Additional natural resources in the watershed include the Santee State Park, near Big Poplar Creek, and the Santee National Wildlife Refuge, which extends over the northern shoreline from Jacks Creek-Cantey Bay area to the Santee Dam. The South Carolina Public Service Authority (Santee Cooper) oversees the operation of the lake with uses that include power generation and numerous forms of recreation (hunting, fishing, boating, swimming). There are a total of 157.1 stream miles and 89,008.3 acres of lake waters in this watershed, all classified FW.

Water Quality

Station	Type	Class	Description
SC-056	SC	FW	DRAINAGE FROM SAFETY KLEEN SEDIMENTATION POND B
SC-057	SC	FW	DRAINAGE FROM SAFETY KLEEN SEDIMENTATION POND A
SC-058	SC	FW	STREAM OFFSITE, SAFETY KLEEN PINEWOOD
SC-005	SC	FW	LAKE MARION APPROX 0.9 MI NW OF RIMINI RR TRESTLE
SC-004	SC	FW	SANTEE RIVER 0.1 MI UPSTREAM OF BROADWATER CREEK
SC-008	SC	FW	SANTEE R. AT RIMINI RR TRESTLE 3.1 MI N OF LONE STAR
SC-009	SC	FW	SPRING GROVE CREEK AT S-14-26

SC-006	C	FW	WARLEY CREEK AT SC 267
SC-038	SC	FW	LAKE MARION AT MOUTH OF HALFWAY SWAMP CREEK
SC-039	SC	FW	LAKE MARION 1.25 MI SE OF RIMINI RR TRESTLE
SC-010	SC	FW	LAKE MARION AT CHANNEL MARKER 150
SC-044	SC	FW	LAKE MARION BETWEEN STUMPHOLE LANDING AND TREE LINE
SC-011	SC	FW	BIG POPLAR CREEK AT S-38-105
SC-012	SC	FW	LAKE MARION 0.6 MI SW OF JACKS CREEK EMBAYMENT
SC-045	SC	FW	UNNAMED STREAM FROM POND ON SANTEE NATL GOLF COURSE
SC-014	SC	FW	LAKE MARION AT HEADWATERS OF CHAPEL BR FLOODED CREEK
ST-025	P	FW	LAKE MARION AT OLD US 301/15 BRIDGE AT SANTEE
SC-015	SC	FW	LAKE MARION AT OLD US 301/15 BRIDGE AT SANTEE
SC-042	SC	FW	LAKE MARION 0.5 MI W OF I-95/US 301 BRIDGE
SC-040	SC	FW	LAKE MARION AT USFWS CHANNEL MARKER 79
SC-041	SC	FW	LAKE MARION 2 MI N OF USFWS CHANNEL MARKER 79
SC-016	SC	FW	LAKE MARION AT USFWS CHANNEL MARKER 69
SC-036	SC	FW	LAKE MARION O.4 MI S OF TAWCAW CREEK EMBAYMENT
SC-021	SC	FW	LAKE MARION 0.9 MI NE OF ROCKS POND CAMPGROUND
SC-022	SC	FW	LAKE MARION AT CHANNEL MARKER 44
ST-024	P	FW	LAKE MARION, POTATO CK EMBAY. AT CAMP BOB COOPER

Santee River **-** The SCPSA has two sampling locations along this section of the Santee River (**SC-004** and **SC-008**). Aquatic life and recreational uses are fully supported at both sites.

Lake Marion **-** Lake Marion has a watershed encompassing 14,540.3 km^2 (up to the Lake Murray, Parr Reservoir, and Lake Wateree dams), a surface area of 44,759.2 hectares, and a maximum and mean depth of 23.4m and 3.9m, respectively. Due to the shallow depth and high nutrient level of the lake, aquatic macrophytes have proliferated and public access has been restricted. Hydropower generation has been impaired by the plants as well as recreation. Treatment measures have included both aquatic herbicides and grass carp stocking since 1989 to the present. Stockings were at a rate of 25 fish/vegetated acre and 100,000 fish at a time, for a total of 400,000 fish from 1989 to 1992. No fish were stocked in Lake Marion in 1993, but 2,000 fish were introduced to Wyboo Creek and Potato Creek in 1994. Low Falls Landing, Wyboo Creek, Potato Creek, and Spiers Landing were stocked with a total of 22,000 grass carp in 1995, and Rocks Pond Landing was stocked with 23,000 fish in 1996. A total of 4,000 grass carp were stocked between the Potato Creek embayment and Dean Swamp in 1997, 750 fish in Fountain Lake in 1998, and no fish were stocked in Lake Marion in 1999. Aquatic herbicide continues to be applied to upper, mid, and lower lake regions to provide access to landings and fishing areas.

The South Carolina Public Service Authority - Santee Cooper (SCPSA) samples fourteen sites and SCDHEC samples one site on Lake Marion. Aquatic life and recreational uses are fully supported at all sites sampled by SCPSA. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred at **SC-044**, and dissolved oxygen

excursions occurred at **SC-005** and **SC-039**, they were typical of values seen in blackwater systems and were considered natural, not standards violations.

Aquatic life uses are not supported at **ST-025**, sampled by SCDHEC, due to occurrences of copper in excess of the aquatic life acute standards, including a high concentration of copper measured in 1995. There was a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Although recreational uses are fully supported, there is a significant increasing trend in fecal coliform bacteria concentration at this site.

***Drainage From Safety Kleen Sedimentation Pond B (SC-056)* -** This site is sampled by the SCPSA. Aquatic life uses are not supported due to pH excursions. Recreational uses are fully supported.

***Drainage From Safety Kleen Sedimentation Pond A (SC-057)* -** This site is sampled by the SCPSA. Aquatic life and recreational uses are fully supported.

***Stream Offsite, Safety Kleen Pinewood (SC-058)* -** This site is sampled by the SCPSA. Aquatic life uses are not supported due to pH excursions. Recreational uses are fully supported.

***Spring Grove Creek (SC-009)* -** This site is sampled by the SCPSA. Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH conditions. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Warley Creek (SC-006) - This site is sampled by the SCPSA. Aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions.

***Big Poplar Creek (SC-011)* -** This site is sampled by the SCPSA. Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

***Unnamed stream from pond on Santee National Golf Course (SC-045)* -** This site is sampled by the SCPSA. Aquatic life and recreational uses are fully supported.

***Chapel Branch (SC-014)* -** This site is sampled by the SCPSA. Aquatic life and recreational uses are fully supported.

Potato Creek Embayment of Lake Marion (ST-024) - Aquatic life uses are not supported due to occurrences of zinc in excess of the aquatic life acute standards, including a very high concentration measured in 1995. In addition, there was a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentrations, and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes portions of Lake Marion within this watershed (see advisory p.34).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / ***FACILITY NAME*** / ***PERMITTED FLOW @ PIPE (MGD)*** / ***COMMENT***	***NPDES#*** / ***TYPE*** / ***LIMITATION***
LAKE MARION SAFETY-KLEEN, INC. (LAIDLAW ENVIR. SER.) PIPE #: 001 FLOW: 1.26 PIPE #: 002 FLOW: 0.61 PIPE #: 002A FLOW: 1.37	SC0042170 MINOR INDUSTRIAL EFFLUENT
PINE TREE CREEK TOWN OF PINEWOOD PIPE #: 001 FLOW: 0.134	SC0046868 MINOR DOMESTIC EFFLUENT
LAKE MARION HILLS/LABRUCE MINE PIPE #: 001 FLOW: M/R	SCG730026 MINOR INDUSTRIAL EFFLUENT
LAKE MARION TRIBUTARY MARTIN MARIETTA/BERKELEY QUARRY PIPE #: 001 FLOW: M/R	SCG730058 MINOR INDUSTRIAL EFFLUENT
BALLARD CREEK TOWN OF PINEWOOD WWTP PIPE #: 001 FLOW: 0.134 (PROPOSED)	SC0046868 MINOR DOMESTIC WQL FOR NH3-N, TRC

Nonpoint Source Management Program

Camping Facilities

FACILITY NAME/TYPE / ***RECEIVING STREAM***	***PERMIT #*** / ***STATUS***
SANTEE STATE PARK/RESIDENT LAKE MARION	38-305-0300 ACTIVE
BELLS WINTER PARK/FAMILY LAKE MARION	38-307-0401 ACTIVE

ROCKS POND CAMP GROUND/FAMILY LAKE MARION	38-307-0403 ACTIVE
RT BLOUNTS OVERNIGHT PARK/FAMILY LAKE MARION	38-307-0406 ACTIVE
LAKE MARION RESORT & MARINA/FAMILY LAKE MARION	38-307-0402 ACTIVE
MILL CREEK LANDING CAMPGROUND/FAMILY LAKE MARION	38-307-0410 ACTIVE
CYPRESS SHORES MARINA/FAMILY LAKE MARION	38-307-0411 ACTIVE
FERGUSON S CAMPGROUND/FAMILY LAKE MARION	38-307-0412 ACTIVE
POLLYS LANDING/FAMILY LAKE MARION	14-307-0009 ACTIVE
ELLIOTTS CAMPGROUND/FAMILY LAKE MARION	14-307-0010 ACTIVE
CAMP BOB COOPER/RESIDENT LAKE MARION	14-305-0001 ACTIVE
CAMP HARRY DANIELS/RESIDENT LAKE MARION	09-305-0001 ACTIVE

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
LAIDLAW ENVIR. SERVICES MINGO MINE #1	0416-85 FULLERS EARTH
LAIDLAW ENVIR. SERVICES MINGO MINE #4	0712-27 CLAY
SAFETY-KLEEN HILLS-LABRUCE	1014-27 CLAY
BLUE CIRCLE MCCURRY PIT	1069-17 CLAY

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
JF CLECKLEY & CO./PLT #4 INDUSTRIAL	IWP-025, IWP-023 ---------

JF CLECKLEY & CO./PLT #6	IWP-060
INDUSTRIAL	---------
LAIDLAW ENVIR. SERVICES	IWP-145
HAZARDOUS WASTE	ACTIVE

Land Application Sites

LAND APPLICATION SYSTEM FACILITY NAME	*ND# TYPE*
SPRAYFIELD TOWN OF ELLOREE	ND0067628 DOMESTIC
TILEFIELD LAKE MARION RES. & MARINA	ND0067610 DOMESTIC
SPRAY ON GOLF COURSE SANTEE PSD	ND0065676 DOMESTIC
SPRAYFIELD SANTEE RESORT HOTEL	ND0067652 DOMESTIC
TILEFIELD SANTEE LAKES CAMPGROUND	ND0067326 DOMESTIC
SPRAYFIELD CYPRESS POINT	ND0062227 DOMESTIC
SPRAYFIELD SCDPRT/SANTEE ST PK COTTAGES	ND0067920 DOMESTIC

Growth Potential

There is a moderate potential for growth in this watershed due primarily to the Lake Marion related factors of fishery tourism, new lakeside subdivisions, marinas, landings, and camping facilities. There is also a potential for residential, commercial, and industrial growth around the interchanges of I-95 at the Town of Santee and with U.S. Hwy. 301 and U.S. Hwy. 15. Some growth is expected around the Town of Pinewood, where the hazardous waste landfill is located.